

Remarks

Further and favorable reconsideration is respectfully requested in view of the foregoing amendments and following remarks.

The disclosure on page 10 of the specification has been amended to correct spelling errors. The correction of the spelling of “cyclohexene” at page 10, line 12 is consistent with the term “alkylene oxides” at page 10, line 10.

The subject matter of claim 10 has been incorporated into claim 1, as a result of which claim 10 has been cancelled. Claim 11 has been amended to incorporate the subject matter of claim 13, as a result of which claim 13 has been cancelled.

In amending claims 1 and 11 to incorporate the subject matter of claims 10 and 13, respectively, the claim language mentioned by the Examiner in connection with the rejection of claims 10 and 13 under the second paragraph of 35 U.S.C. §112 has been avoided, thus rendering this rejection moot.

New claims 14-22 have been added to the application.

New claim 14 is the same as claim 1 (without the subject matter of claim 10 being incorporated therein), except that claim 14 excludes isobutylene oxide from the oxirane compounds. Since isobutylene oxide is one of the oxirane compounds specifically mentioned in the specification (page 10, lines 10-11 and 15), the express exclusion of isobutylene oxide from the oxirane compounds in claim 14 is permissible (MPEP 2173.05(i)).

New claims 15 and 16 are directed to specific oxirane compounds, which are disclosed at page 10, lines 9-13 of the specification.

New claims 17-22 correspond to claims 2 and 4-8, respectively, but are directly or indirectly dependent on new claim 14.

The patentability of the presently claimed invention over the disclosures of the references relied upon by the Examiner in rejecting the claims will be apparent upon consideration of the following remarks.

Thus, the rejection of claim 12 under 35 U.S.C. §102(b) or 35 U.S.C. §103(a) based on Summer et al. is respectfully traversed.

Applicants take the position that this reference fails to anticipate claim 12 because it fails to disclose aromatic ethers which are producible by reacting phenols with an oxirane compound with the use of an anionic exchange resin as a catalyst.

The use of an alkali metal carbonate as a catalyst and an alkali metal hydroxide for crystallization in the process of the Summer et al. reference would never provide aromatic ethers with low metal contents as set forth in claim 12 of the present application.

The obviousness rejection over the Summer et al. reference should also be withdrawn because this reference fails to suggest reacting phenols with an oxirane compound with the use of an anionic exchange resin as a catalyst.

In addition, the Summer et al. reference fails to recognize that the use of an anionic exchange resin as a catalyst can provide aromatic ethers having substantially no metal contents, which is one of the excellent advantageous effects attained by the present invention.

The Examiner takes the position that if the aromatic ether of Summer et al. does not have the claimed purity, then the instant aromatic is considered obvious over the aromatic ether of Summer et al. because when claiming a purer form of a known compound, it must be demonstrated that the purified material possesses properties and utilities not possessed by the unpurified material.

However, there is no indication in the Summer et al. reference that one of ordinary skill in the art would be enabled to obtain aromatic ethers having a metal content of less than 100 ppm by mass, which as Applicants have previously pointed out, is equivalent to 99.99% purity. The Examiner has not pointed to any disclosure in this reference which would indicate that such a purity could be achieved following the reference process for producing the aromatic ethers. In the absence of such disclosure, Applicants take the position that the reference fails to anticipate or suggest the aromatic ethers of claim 12 of the present application.

The rejection of claims 1, 2, 4-6 and 9 under 35 U.S.C. §103(a) as being unpatentable over Fellows et al. has been rendered moot, since the subject matter of claim 10, which is not subject to this rejection, has been incorporated into claim 1.

The rejection of claims 1, 2 and 4-13 under 35 U.S.C. §102(b) or 35 U.S.C. §103(a) based on Hirano et al. alone or in view of Fellows et al. is respectfully traversed.

Both of these references fail to teach or suggest using the same solvent both in the reaction step and in the crystallization step, wherein all or part of the solvent used in the reaction step is included in the crystallization step, as claimed in the present claims.

In addition, these references fail to recognize that the use of the same solvent both in the reaction and in the crystallization step can improve productivity as a whole in the process for producing aromatic ethers, as discussed in the full paragraph on page 27 of the specification.

Further, the Fellow et al. reference only discloses reacting catechol with isobutylene oxide, and the Hirano et al. reference only discloses using an anionic exchange resin as a catalyst for the reaction of phenols with an oxirane compound. However, these references fail to teach or suggest that the use of a solvent having a specific solubility parameter in the reaction step and/or in the crystallization step can provide an extremely high selectivity (yield) in the production of the aromatic ethers having a phenolic hydroxy group and/or can provide desirable precipitation of aromatic ether crystals from a crystallization solution by, for example, slightly changing the state of the crystallization solution, both of which are also excellent advantageous effects attained by the present invention, as discussed in the full paragraph on page 18 of the specification, and in the disclosure from page 33, line 2 from the bottom to page 34, line 17.

For these reasons, Applicants take the position that the references relied upon by the Examiner in rejecting the claims fail to disclose or suggest either the presently claimed aromatic ethers or the processes for producing them.

Therefore, in view of the foregoing amendments and remarks, it is submitted that each of the grounds of rejection set forth by the Examiner has been overcome, and that the application is in condition for allowance. Such allowance is solicited.

Respectfully submitted,

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